Date: Fri, 25 Feb 94 04:31:08 PST
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V94 #42
To: Ham-Homebrew

Ham-Homebrew Digest Fri, 25 Feb 94 Volume 94 : Issue 42

Today's Topics:

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

Date: 24 Feb 1994 21:49:17 GMT
From: agate!howland.reston.ans.net!gatech!news-feed-1.peachnet.edu!news-feed-2.peachnet.edu!umn.edu!lynx.unm.edu!SantaFe!rmf@ames.arpa
Subject: [Q] COLLINS KWM-380 Yaesu ST7000
To: ham-homebrew@ucsd.edu

Hi,
     I am sending this mail for a friend, kt5x, who does not have internet access. He has a Collins KWM-380 transceiver and a Yaesu ST7000 amp. He would like to conenct his computer between to two so the computer can check the transceivers frequency and when he changes bands the computer will issue the commands to his yaesu amp to switch bands.

In otherwords, the computer will allow him to switch bands from his transceiver without having to touch his amp.

The problem is that he does not have the computer interface information for his Collins transceiver for either the hardware connection and the software commands.

He also does not have the commands needed to talk to his Yaesu amp. He has written Yaesu several but has never gotten a response.

Can anyone out in netland help him out?

Rob Farber
rmf@santafe.edu

Date: 23 Feb 1994 19:16:56 -0800
From: agate!library.ucla.edu!csulb.edu!nic-nac.CSU.net!ctp.org!not-for-mail@ames.arpa
Subject: Advice, please, re 12V Battery Supply in Shack
To: ham-homebrew@ucsd.edu

I've seen guys try the battery chargers that are supposed to monitor the battery voltage and stop charging when the voltage gets to a certain point. These chargers are for batteries in boats, etc. It seems that just don't work. So I took a lamp timer and plugged the charger into it, and set it for four or six hours. It reduces the charger's tendency to overcharge. If the battery gets a little on the low voltage side, just add a few hours to the charging time. The other thing I would consider is swapping the battery periodically with one in an auto.

--
Fortune cookie/Tagline for the week: Funny -- only sensible people agree with me. Reality-ometer [\.....] Hmmph! Thought so...
Two rights don't make a wrong, they make an airplane.
Geek Code: GAT d-- p-@ c++(++++) l? u? e+/* m++(*) s !n h+/(*) f g+ w+ t++ t- y-(*)

Date: 24 Feb 1994 17:28:57 GMT
From: olivea!charnel!xmission!u.cc.utah.edu!cs.weber.edu!val@ames.arpa
Subject: Challenge: Cheapest (least expensive) homebrew 2m voice rig
To: ham-homebrew@ucsd.edu

Here is a challenge for those in homebrew-land:

What is the lowest cost voice amateur transceiver that can be homebrewed?

Other parameters to consider are:

- It should be from parts that are easy to get (Junk box, Radio Shack, etc.), or are easy to build (air-core coils, etc.).

- It only needs to get a clear signal about 5 miles (in a residential zone - lots of low-level obstacles), but 10 miles would be better.

- It may transvert the signal to a very low power transmission (for reception in the same room) in the AM or FM broadcast bands (if this is legal) for signal decode/output. (The separate AM/FM radio should be listed but not included in the cost estimate.)

- It may be crystal tuned to one or few frequencies.

- If it cannot run off of a personal computer power supply, then include the power supply price as well. (If it cannot run off of +12V @ 2A, then it is probably overpowered for this application anyway.)

- Cost of a simple antenna should be included. (Coat hangers can be considered as being free.)

- It should be as small as possible, but need not be a handheld.

73 -- KB7VBF
--
|================= #include <stddisclaimer.h> ================///=============|
| "AMIGA: The computer for the creative mind" (tm) Commodore /// Weber State |
| "Macintosh: The computer for the rest of us"(tm) Apple \\\///   University |
|== "I think, therefore I AMiga" -- val@csulx.weber.edu ==\///= Ogden UT USA =|

Date: Thu, 24 Feb 1994 20:23:17 +0000
From: news.acns.nwu.edu!math.ohio-state.edu!howland.reston.ans.net!pipex!demon!kanga.demon.co.uk!dick@network.ucsd.edu
Subject: CRYSTAL SOCKETS
To: ham-homebrew@ucsd.edu

Hi gang,
I have a supply of crystal sockets
for HC49 crystals, $1 each plus
$2 per package for US posting.
$$$ bills only to..
Dick Pascoe
Seaview,   Crete Road East

FOLKESTONE CT18 7EG.   UK.

Date: Thu, 24 Feb 1994 02:02:29 GMT
From: rit!isc-newsserver!ultb!jdc3538@cs.rochester.edu
Subject: Forming inductors out of PCB traces question
To: ham-homebrew@ucsd.edu

I once saw a RF modulator that used PC board traces for the inductor
in its tuned circuit; they were in a spiral pattern. Is this a good
method for forming inductors? Does capacitance to a ground plane
layer mess things up? I'd like to form a lowpass filter, so stray
capacitance to ground may not be a really bad thing..

Also, how does one compute inductance? The ARRL Handbook gives a
formula for inductance of a coil where (coil length) > (.4 * coil diameter).
In this case we are working in a flat plane, so coil length = 0.
Also, coil diameter is not constant with a spiral inductor.

Any suggestions, ideas or references to books/articles are appreciated.

73...Jim
N2VNO

Date: Wed, 23 Feb 1994 20:30:42 GMT
From: elroy.jpl.nasa.gov!swrinde!cs.utexas.edu!howland.reston.ans.net!
usenet.ins.cwru.edu!lerc.nasa.gov!magnus.acs.ohio-state.edu!csn!col.hp.com!
srgenprp!alanb@ames.arpa
Subject: How about VHF MOSFET's for 2-meter amp?
To: ham-homebrew@ucsd.edu

Elendir (elendir@enst.fr) wrote:
: J.D. Cronin (jdc3538@ultb.isc.rit.edu) wrote:

: : What are the advantages/disadvantages of RF power MOSFET's? From what
: : the listing shows, they have more gain than bipolars. Are there any
: : "gotchyas"? How does efficiency compare? They are listed for 28 or
: : 50 volt supplies. How much power can you get at 12 volts? The 1994
: : ARRL handbook doesn't seem to cover any of this.

: Well. The first advantage of a MOSFET is its high input impedance.

That's true at low frequencies, but power MOSFETs have high input
capacitance, so the impedance is actually quite low at VHF frequencies.

: It doesn't really sucks much power from the previous stage.

Again, that's true at low frequencies, but not so true at VHF. Even if
you can tune out the input capacitance, it is hard to do that without
losses in the matching network, not to mention that the FET input
impedance becomes lossy at those frequencies.

: Their input
: impedance is essentially capacitive. They are more stable than bipolar.
: They exhibit only quadratic distorsion, thus a push pull stage made up
: with MOSFET can be really linear.

They are quadratic only when operated in the "linear" region (class A).
As soon as you bias them into class AB or beyond, they have lots of
odd-order distortion. Hi-fi amplifiers can afford to waste power
with class-A operation in order to get low distortion, but you generally
don't want (or need) to do that with an RF amp.

: MOSFET also tend to dissipate less power than BJT, and to have a higher
: bandwidth. Their output impedance varies less with frequency.

What is true of MOSFETs is that they don't have the secondary breakdown
problem of bipolars, so it's easier to avoid blowing them up.
Also they are easier to run in parallel, since the on-resistance has
a positive temperature characteristic (opposite of the saturation
voltage of bipolars.) And of course, at lower frequencies (HF range)
they really do take less drive power if tuned properly.

AL N1AL

Date: 23 Feb 1994 23:21:08 GMT
From: elroy.jpl.nasa.gov!sdd.hp.com!hpscit.sc.hp.com!rkarlqu@ames.arpa
Subject: How about VHF MOSFET's for 2-meter amp?
To: ham-homebrew@ucsd.edu

In article <CLp2B8.43J@srgenprp.sr.hp.com>, Alan Bloom <alanb@sr.hp.com> wrote:
>: : What are the advantages/disadvantages of RF power MOSFET's? From what
>
>What is true of MOSFETs is that they don't have the secondary breakdown
>problem of bipolars, so it's easier to avoid blowing them up.
>Also they are easier to run in parallel, since the on-resistance has
>a positive temperature characteristic (opposite of the saturation

There is a well-known form of oscillation that can take place when
power MOSFET's are paralleled. Be sure to install ferrite beads on
the gate leads to avoid this problem.

Rick N6RK
rkarlqu@scd.hp.com

Date: 23 Feb 94 11:41:40 CST
From: mvb.saic.com!unogate!news.service.uci.edu!usc!howland.reston.ans.net!
vixen.cso.uiuc.edu!uchinews!cdsmail!timbuk.cray.com!hemlock.cray.com!
andyw@network.ucsd.edu
Subject: How to measure low power @ VHF & above.
To: ham-homebrew@ucsd.edu

Anyone have any favourite methods for measuring VHF/UHF
power in the 1 - 10 mW range ? I can't just go out and
buy a bolometer, so what do people suggest ?

FWIW, I have two immediate applications, one is connecting
a transverter to a TS-711A, the other is measuring the output
power of a small UHF oscillator & amplifier.

I have a spectrum analyser, but it's not directly calibrated, I
can measure differences using the IF attenuator, though..
--
andyw   N0REN/G1XRL

andyw@aspen.cray.com   Andy Warner, Cray Research, Inc. (612) 683-5835

Date: Thu, 24 Feb 1994 15:22:07 GMT
From: elroy.jpl.nasa.gov!swrinde!gatech!howland.reston.ans.net!math.ohio-
state.edu!magnus.acs.ohio-state.edu!csn!col.hp.com!srgenprp!glenne@ames.arpa
Subject: How to measure low power @ VHF & above.
To: ham-homebrew@ucsd.edu

Andy Warner (andyw@aspen32.cray.com) wrote:

: Anyone have any favourite methods for measuring VHF/UHF
: power in the 1 - 10 mW range ? I can't just go out and
: buy a bolometer, so what do people suggest ?

Andy,
  The lowball method I use is a calibrated Schottkey diode detector.
See my HR Mag microwave station design series from 1988 for a circuit
and calibration curve; June '88 (Page 23). While it works at the levels you
mention, this method is limited in range and suffers from error if the
signal is not sinusoidal (large harmonic content, for example).

If your analyzer is functional and only uncalibrated, it is no doubt very worthwhile to get it going since it offers a lot more information beyond power. If +-1 dB sort of accuracy isn't enough for you, you might consider building your own power meter. There's an interesting construction article in Dececmber 1977 HR Mag (page 38) by WA4ZRP. He uses small (grain of wheat size) lamps and seems to get reasonable performance to 500 MHz.

73

Glenn Elmore n6gn

ax.25 n6gn@wx3k.#nocal.ca.usa.na
amateur IP: glenn@SantaRosa.ampr.org
Internet: glenne@sr.hp.com

Date: Thu, 24 Feb 1994 18:17:23 GMT
From: agate!howland.reston.ans.net!cs.utexas.edu!swrinde!sdd.hp.com!hp-cv!hp-pcd!hpcvsnz!tomb@ames.arpa
Subject: How to measure low power @ VHF & above.
To: ham-homebrew@ucsd.edu

Andy Warner (andyw@aspen32.cray.com) wrote:

: Anyone have any favourite methods for measuring VHF/UHF
: power in the 1 - 10 mW range ? I can't just go out and
: buy a bolometer, so what do people suggest ?

1mW at 50 ohms is .22 volts RMS, or a bit over .3 volts peak. This is _plenty_ to rectify with a Schottky barrier diode. A key is to operate the detector into a very high impedance. I did this in a field strength meter I use for bunny hunting, and found that I can see as little as .3 _milli_volts at the antenna input. Admittedly I'm stepping up the voltage, but only by about 5:1. A key thing to remember here is the diode current follows its exponential all the way through zero volts and down to negative voltages. You just have to get the diode current down to a really low value if you want it to rectify low voltages.

I would recommend calibrating a diode detector with a known-good signal source, but if you don't have one, you should still be able to do OK by just taking the rectified voltage as the peak RF voltage. Suggestion: use a 50 ohm low-SWR resistor as a load. Off the top of the load, take a 100pF cap to a Schottky diode to ground. 100k R

from junction of cap and diode, feeding a .01uF to ground.
Across the .01uF, _at_least_ 22 megs. Monitor the voltage
with an "infinite input impedance" meter; or buffer it with
a very low bias current op amp. I've used a CA3140 for this;
at about -1 volt for negative supply, the input bias current
of the samples I've tested goes through zero. 1pA through
1000megs is only 1mV--the 3140 offset voltage isn't this
stable to begin with. Especially for UHF, keep the leads
in the RF section down to non-existant lengths.

73, K7ITM

Date: 24 Feb 1994 14:00:59 GMT
From: mvb.saic.com!unogate!news.service.uci.edu!ihnp4.ucsd.edu!agate!
usenet.ins.cwru.edu!lerc.nasa.gov!news.larc.nasa.gov!grissom.larc.nasa.gov!
kludge@network.ucsd.edu
Subject: Looking for sources of ferrite rod
To: ham-homebrew@ucsd.edu

In article <19416.wrmed@mr.net> <pja@wrmed.com> writes:
>
>I am looking for ferrite rod for winding antennas, making inductors, etc.

Open up an IBM PC power supply, and you'll find a couple small chokes
wound around ferrite rods. The material used is optimized for the 100 KHz
region and tends to be a bit lossy at HF, but it's okay.

On top of this, you get some nice film capacitors, a bunch of electrolytics,
some good switching transistors, and two 200V electrolytics with very large
values.

Your local PC repair place is probably throwing several power supplies in
the trash, because they aren't worth the money to repair when they fail.
Absolute parts goldmines.
--scott
--
"C'est un Nagra. C'est suisse, et tres, tres precis."

Date: 24 Feb 1994 00:09:19 -0600
From: sgiblab!banana!vpbuild!admin1.me.vp.com!u018.me.vp.com!not-for-
mail@ames.arpa
Subject: Paralleling Power Diodes ?
To: ham-homebrew@ucsd.edu

>
>I wouldn't count on 3A with 3 diodes using that technique,
>but you should get something better than 1A.
>
>AL N1AL
>

     What would you recommend using for 3A at 4KV, I have seen some 2Amp 10000 volt "double diode" bridges in Nebraska surplus. These are setup for heat sink mounting. 2 in parallel ?

     No, I'm not from California either....

--
     Alan Anderson   alana@u018.me.vp.com
     Varco-Pruden Buildings   alana@alanahome.me.vp.com
     6000 Poplar, Suite 400
     Memphis, TN 38119   (901) 762-6068 (Work)

Date: 24 Feb 1994 02:15:22 GMT
From: openlink.openlink.com!autodesk.com!daved@uunet.uu.net
Subject: where to get xtal sockets?
To: ham-homebrew@ucsd.edu

I'm building a QRP 3-bander from the ARRL Handbook, and have everything I need except for sockets for the crystals, which I can't find anywhere! Can anyone point me to a source for PC-mount HC-49U (the small size crystals) sockets, or sell me four or five? I'd really appreciate it!

Thanks,
Dave KD6LSA

End of Ham-Homebrew Digest V94 #42
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